
INTEROFFICE MEMORANDUM

TO: KYLE SIPES
FROM: ABDULLAH ALYAMI
SUBJECT: ARCATA WASTEWATER TREATMENT PLANT TRIP
DATE: OCTOBER 7, 2016

Purpose:

The purpose of this memorandum is to explain how the wastewater is treated at the Arcata Wastewater Treatment Plant (AWTP) and explain the purpose of each part of the treatment plant. Also, state any problems the AWTP is facing and the modification that's taking a place to solve the problems.

Discussion:

On September 30th a trip with the Engineering 115 class took a place going to the AWTP. The trip was guided by one of the instructors of the class, Kyle Sipes, and a staff member of the AWTP, Thea M Sevelson. As stated by Thea, the operators have noticed that there has been a variation of effluent volume received daily by the AWTP; she claimed that they receive about one to 0.9 million gallon per day of wastewater during the summer time and about 7 to 9 million gallons/day during the winter time. The reason to this variation is due to two factors: first, during the summer time the students go back home which reduces the water that comes from the shower or after flushing the toilet and it's known to be the dry time where there less rainfall; second, during the wintertime students come back for school and also the wet season starts where they experience a lot of rainfall that contributes to the volume of the wastewater that received by the treatment plant. The BOD Value that the wastewater has once it received is about 200 mg/L. After the wastewater leaves the primary treatment to the oxidation ponds, the big parts of the waste would have been removed by the big and small digesters. The sludge will be taken to dry in a drying beds and then used as a compost; however, the wastewater continues to the ponds containing about 60 mg/L of BOD. The wastewater stays in the Oxidation Pond for at least a month to allow harmful bacteria to die and algae grow, which help to reduced nutrients like nitrogen. After that, the wastewater is released into the Wetlands, which is full of plants that help block the sun so the rest of the bacteria die, reduce more nutrients, and stop the algae from going to the Bay. Furthermore, the goal after treating the

wastewater is to have a value of 30 mg/L of BOD before releasing it to the Bay. Moreover, due to the age of the AWTP, Thea claimed that they are having a problem with a sludge buildup in the Wetlands. She further explained that there has been some modification to solve the problem, which is a project called the Blue Frog that Kyle is working on. The Blue Frog purpose is solubilizing the sludge so it could be broken by the bacteria and also reduce more nutrients; however, it has not yet to be proven that the Blue Frog is helping with reducing the nutrients.

Conclusion:

Even though the AWTP is doing an incredible work reducing the waste of the water, we shouldn't neglect the importance of reducing the materials we flush-down the toilet; "there are stuff that we find that shouldn't be there at the first place, things don't magically disappear, they come to the AWTP," said Thea M Sevelson.